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From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

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NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT
(PCT Rule 71.1)

Date of mailing
(day/month/year)

17.08.2004

Applicant's or agent's file reference
2002BO42A

IMPORTANT NOTIFICATION

International application No.
PCT/US 03/09517

International filing date (day/month/year)
28.03.2003

Priority date (day/month/year)
29.03.2002

Applicant
EXXONMOBIL CHEMICAL PATENTS, INC. et al

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

ACKNOWLEDGED
PATENT LEGAL ASSISTANT GROUP
T. N. KEYES

RECEIVED

Name and mailing address of the international
preliminary examining authority:

AUG 23 2004

Authorized Officer

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PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)



Applicant's or agent's file reference 2002BO42A	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/PEA/416)	
International application No. PCT/US 03/09517	International filing date (<i>day/month/year</i>) 28.03.2003	Priority date (<i>day/month/year</i>) 29.03.2002
International Patent Classification (IPC) or both national classification and IPC C07C266		
Applicant EXXONMOBIL CHEMICAL PATENTS, INC. et al		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of sheets.

- This report contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 09.09.2003	Date of completion of this report 17.08.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer O'Sullivan, P Telephone No. +31 70 340-4511 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/US 03/09517**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*):

Description, Pages

1-19 as originally filed

Claims, Numbers

1-31 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/US 03/09517**

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	1-22,28-31
	No: Claims	23-27
Inventive step (IS)	Yes: Claims	1-15,28-31
	No: Claims	16-27
Industrial applicability (IA)	Yes: Claims	1-31
	No: Claims	

2. Citations and explanations

see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US 03/09517

Re: Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following document:

D1: US 5026933

Claims 1-15

D1 describes a process for the alkylation of benzene in the presence of dealuminized mordenite. The olefins are tetramers with an average of 1.3 methyl branches per chain and are obtained in a process using ZSM23 as catalyst. However, mordenite catalysts do not display the d-spacing maxima recited in the present claim 1. These specific d-spacing maxima are typical of the MCM22 family of molecular sieve catalysts. The process of claims 1-15 is therefore novel. The MCM22 family is highly selective to the production of alkylaromatic products in which the aromatic compound is bonded to the long chain alkyl group at the second or third position in the chain, conferring advantageous properties. The use of this family of zeolites is not taught nor hinted at by D1; claims 1-15 are therefore inventive.

Claims 16-22

The process of claims 16-22 is not known in relation to the olefinic hydrocarbon mixture mentioned in claim 1 and is therefore novel. The alkylation of benzene with a linear olefin is typically carried out in the prior art in the presence of a homogeneous catalyst, such as AlCl_3 or HF (see application, page 1, paragraph 2), i.e. the use of these catalysts in this particular alkylation is known. The difference between the process according to D1 and the process according to claims 16-22 lies in the nature of the catalyst. Since AlCl_3 or HF as catalysts do not appear to confer any particular advantages over the dealuminated mordenite of D1, the problem to be solved can be seen as the provision of an alternative process for the production of said alkylaromatic hydrocarbon composition. The use of a known alternative catalyst in said process cannot be seen as being inventive. Claims 16-22 are therefore not considered inventive.

Claims 23-27

Claims for products defined in terms of a process of manufacture are only admissible if the products as such fulfill the requirements for patentability, i.e. inter alia that they are new and inventive. A product is not rendered novel merely by the fact that it is

produced by means of a new process. Claims 23-25 therefore does not fulfill the requirements of Art 33(2) PCT since this composition is known as the product of the process according to D1.

D1, column 7, lines 8-16 describes the use of the products of the ZSM23 oligomerisation in the production of alkylated benzenes. On D1, column 9, lines 61-68 the sulfonation of said alkylbenzenes is disclosed. Claims 26-27 are therefore not novel.

Claims 28-31

Present claim 28 is directed to a process for preparing an alkylaryl sulfonate mixture in which at least two alkylaromatic hydrocarbon compositions are mixed together and the resulting mixture is sulfonated. This process is novel with respect to D1. D1 containing no teaching nor hint to such a mixing process to solve the problem of improving the properties of the arylalkylsulfonates. Claims 28-31 are therefore considered novel and inventive.